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Applying behavioral insights to delay school start times

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Abstract

Healthy People 2020 established a national objective to increase the proportion of 9th – 12th grade students reporting sufficient sleep. A salient approach for achieving this objective is to delay middle and high school start times. Despite decades of research supporting the benefits of delayed school start times on adolescent sleep, health, and well-being, progress has been slow.

Accelerating progress will require new approaches incorporating strategies that influence how school policy decisions are made. In this commentary, we introduce four strategies that influence decision-making processes and demonstrate how they can be applied to efforts aimed at changing school start time policies.

Keywords

school start times; adolescents; behavioral economics; sleep; policy change

Introduction

School start times have received significant national attention. Recent policy statements advocating that middle and high schools delay start times until after 8:30 a.m.^{1,2} are supported by decades of research on biologically-driven delays in sleep onset during adolescent development.³ Societal demands for early school start times are at odds with these developmental changes, particularly the circadian shift to later sleep onset and wake times. This biologically driven shift limits the opportunity for adolescents to achieve the approximately 9 hours of sleep on school nights at times needed for optimal functioning.^{4,5} Delayed school start times better attuned with adolescent sleep patterns have been associated with improvements in sleep duration, tardiness, absenteeism, suspensions, graduation, mood,

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health-related behaviors, and driving.^{6,7} This evidence suggests that school start times are an important, modifiable factor impacting multiple aspects of adolescent well-being.

Numerous economic, social, and political pressures led to earlier school start times beginning in the 1950s and accelerating in the 1970s.⁸ This trend continued into the 21st century despite compelling evidence that early school start times (before 8:30 a.m.) conflicted with developmental changes in adolescent sleep patterns. In 2012, only 17.7% of public middle, high, and middle-high combined schools started school after 8:30 a.m.⁹ Nonetheless, hundreds of schools have found ways to shift bell times to better accommodate the sleep needs of adolescent students, and the number of organized community efforts to ensure developmentally appropriate school hours continues to grow.⁸ In addition, since 2014 several major national health organizations including the American Academy of Pediatrics, American Medical Association, and American Academy of Sleep Medicine have recommended that middle and high schools require attendance no earlier than 8:30 a.m.¹⁰ Despite this recent momentum, most schools have maintained the status quo. New approaches and strategies are needed to help school districts and parents successfully push back school start times.

Relying on an evidence-based approach to start-time policies may be a poor model for changing policy because it assumes that district officials and stakeholders engage in a rational decision-making process. However, the decision-making process is affected by many factors. Two factors, common biases and mental shortcuts, often pre-empt rational decisions and result in sub-optimal decisions.¹¹ Behavioral economics (a field that draws heavily from economics, social psychology, cognitive science, and marketing) offers insights into why people make decisions that counter both evidence and their own preferences and self-interest.¹² Behavioral scientists have more recently applied these insights to health decision making.^{12–15} In this commentary, we introduce four behavioral economic principles and demonstrate how they could be used to boost strategies for organizations and individuals seeking to change school start times policies.

Applying Behavioral Insights to Advance School Start Time Policy Changes

Make it easy by changing the default option

Humans have a strong tendency to stick with the default option, i.e., the pre-selected or status quo option that will apply unless another option is actively selected.¹⁶ Changing the default option has been shown to significantly impact a wide range of financial and health care decisions including retirement savings, vaccination, and organ donation consent.^{17,18} Organ donation consent rates are 25–30% higher in countries where organ donation consent is the default option (an “opt-out” policy), compared to countries requiring purposively opting-in to donate organs.¹⁹ Making the societally optimal choice the default option, and thus the easier choice, is a powerful policy nudge.¹²

In most states, the early start times most districts implemented decades ago became the default.⁹ To change this default, decision-makers must invest time and effort to evaluate delayed start time options. This contributes to an asymmetric burden for decision-makers trying to change the status quo.²⁰ Moreover, financial and budgetary pressures, as well as

pushback from local communities concerned about perceived logistical obstacles and/or personal inconvenience, may limit decision-makers' ability to consider alternative options fully.²¹ These factors contribute to a reluctance to change start times even when safer and healthier alternatives exist.

To counter this default bias, states and regions could adopt later start times as the default by requiring districts to justify early start-time policies annually with evidence. School districts would retain decision-making authority about start times, but the burden of proof would be on districts with schedules running counter to the body of scientific evidence; late-start-time districts would have no such requirements. This added burden should deter districts from maintaining early start times.

Promote social norms

People want to do what they see others do, or what they perceive as the social norm. For example, when people are informed that their peers are getting vaccinated, they are more likely to accept vaccinations.²² Several strategies can be employed to influence perceptions that later school start times are the social norm. Success stories of school districts that have delayed start times can be promoted. Messaging can highlight that hundreds of schools in over 44 states have successfully delayed school start times¹⁰ rather than emphasizing that ~80% of middle and high schools in the US start earlier than 8:30 am.⁹ Making it easy for districts or schools to join or start a local chapter of Start School Later, a nonprofit coalition of health and education professionals and community advocates aiming to ensure school hours compatible with sleep health, can provide a network of peers that will influence perceptions of the social norm, as does promoting position statements by health, civic, and education organizations that recommend later start times. An incentive program like the Maryland State Department of Education's Orange Ribbon Certification Program,²³ enacted by law in 2016 to recognize districts that have delayed bell times, can also be used to change social perceptions about acceptable school hours.

Identifying social norms for close referent groups can further increase the likelihood of adopting specific behaviors. Hotel towel reuse policies provide a compelling example of this effect: while messages informing hotel guests that most guests reuse towels increases towel reuse, refining these messages to reference guests staying in that guest's particular hotel room increases towel reuse further.²⁴ Similarly, close referent groups (school districts) can be identified by creating a web-based algorithm to identify schools with similar characteristics (e.g., small/large, suburban/urban) and desired approaches for delaying start times such as employing a top-down approach, following an established blueprint,⁸ or working with a peer-district mentor. Peer-mentor credibility may be particularly helpful in changing behavior of districts facing strong community or administrative resistance.²⁵ Personalized letters can be sent from the superintendent of a school district that delayed start times to a comparable early start time school district. These messages, from a close referent group, may increase the likelihood that a school district will adopt later start times.

Increase salience of messaging

With limited attentional resources and an information-rich environment, humans are strongly influenced by the salience of messaging, including messaging attractiveness, timeliness, and relevance.²⁶ Attracting attention to school districts with early start times using timely, color-coded, personalized messages can amplify strategies to delay start times. Examples of salient events such as school board elections, teen driving fatalities, and state-wide standardized test score reports offer opportune times for messaging about start times. Another example may also be to color-code school districts according to start times in state publications and websites as a resource for community stakeholders, e.g., red for schools with early start times and no efforts to delay start times; yellow for schools that have delayed start times but the start time is still earlier than 8:30 am; and green for schools with later start times. Color-coded labeling schemes have been shown to influence other health behaviors effectively.²⁷

Counter omission bias

People judge the negative consequences resulting from an action as worse than equally negative consequences from inaction, or omission.²⁸ This is because actions, such as changing start times, are more obvious than inactions (e.g., maintaining early start times).²⁹ To counter omission bias, information conveying the negative consequences of inaction must be delivered clearly and compellingly.²⁹ This can be accomplished by graphically depicting the negative impact of early start times, such as more car crashes and poorer test scores, and contrasting it to the potential and relatively smaller financial and logistic impacts that rarely come to fruition⁸.

Requiring districts maintaining early start times to justify their policy annually as described above may also counter omission bias. The required action, an annual report, replaces the perception that maintaining early start times is inaction. Moreover, requiring decision makers to explain their decisions gives them a greater investment in seeking solutions.^{29,30} In sum, increasing accountability is an effective strategy for countering omission bias.^{29,30}

Conclusion

Although delaying school start times can have a broad sweeping effect on adolescent health and well-being, reversing decades-long trends toward earlier hours requires novel strategies. This commentary identifies several potentially relevant strategies informed by behavioral insights about how people make decisions to supercharge existing efforts to delay start times. While many strategies and various applications of these strategies to change policy exist, this commentary focuses on four strategies with a few examples of their application to school start time policies; changing the default option, promoting social norms, increasing the salience of messaging, and countering omission bias. While changing defaults options and social norms may take time to bring to fruition, strategies to initiate default and social norm change can begin immediately. Evidence that other health decisions, strongly influenced by social norms and individual preferences, are substantially impacted by default options underscore the importance of these strategies. For example, a recent cross-country study show that closing the gap between organ supply and demand in some countries could

be accomplished by achieving the 25–30% higher organ donation rate reported in presumed-consent countries versus informed-consent countries,¹⁹ Similarly, childhood vaccination rates are greater in children of vaccine-hesitant parents when discussions presume parents “opt in” versus inviting them to deliberate (89% versus 30%, respectively).³¹ To identify the most effective strategies for changing school start time policies, school districts should continue to partner with researchers whenever possible to evaluate the effect of applying these suggestions.

To some extent these strategies have been implicitly utilized by grassroots organizations such as Start School Later.¹⁰ However, organizations and individuals could integrate them more deliberately into existing and future programs to erode persistent obstacles to change and build political will. Efforts to change social norms by reframing sleep and school start times as public health imperatives rather than negotiable school budget items are already underway. Efforts to join the sleep and health community with educators, legislators, and advocates have been critical tactics in this reframing, as has working with legislators to enact incentive programs and statewide parameters, promoting policy statements by key opinion leaders, building a national clearinghouse, and facilitating peer mentoring for school leaders. This foundation could be strengthened by retooling messaging to increase salience and counter omission bias, and by building insights from behavioral economics into new materials and the programs created to leverage them.

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